



## **Zika Virus Frequently Asked Questions (FAQ)**

*1 July 2016*

### **Abbreviations used in this FAQ document:**

**CDC:** *United States Centers for Disease Control and Prevention*, the federal government agency responsible for protecting the United States from health, safety, and security threats.

**DOH:** *Department of Health*, the state government agency responsible for protecting and improving the health and environment for the people of Hawaii.

**EPA:** *Environmental Protection Agency*, the federal government agency responsible for protecting human health and the environment.

### **General Questions about Zika**

#### **What is Zika?**

Zika is a disease caused by the Zika virus, which is spread to people primarily by *Aedes* mosquitoes (the same mosquitoes that spread [chikungunya](#) and [dengue fever](#)). In some cases it can also be spread through blood transfusions, through sexual contact, or from a pregnant mother to her baby.

Although Zika virus currently is not endemic to Hawaii (meaning at this time people do not get it from mosquitoes in Hawaii), it is very important for residents of Hawaii to protect themselves from Zika infection when they travel abroad to areas where Zika infection is spreading, and to monitor their health when they return to Hawaii.

#### **How do you get it?**

Like the viruses that cause dengue fever and chikungunya, Zika virus is spread through the bite of infected *Aedes* mosquitoes, which are found throughout Hawaii. A mosquito can become infected if they bite a person who is already infected with the virus. This is why it is so important to stay away from mosquitoes when you are infected. When an infected mosquito bites a new person, that mosquito can transmit the Zika virus to that new person.

There are other ways Zika can be spread:

- a. In women infected while pregnant, the Zika virus has been reported to be able to be passed to their baby, either **during pregnancy or at the time of birth**. Investigations are ongoing to better understand how this happens.
- b. Zika virus seems to also be spread through **sexual contact**, from an infected man to his sexual partners. It is not yet known how long the virus can be spread this way after the infected male's symptoms have cleared, but it appears that the virus is present in semen longer than in blood. In known cases of sexual transmission, the men had developed Zika virus symptoms [[source](#)].
- c. Cases of Zika virus spreading through **blood transfusion** have also been reported, although these cases are still under investigation.

### **What are the symptoms of Zika?**

Only about 1 in 5 infected people will have symptoms. When they do have symptoms, the most common are fever, rash, joint pain, and red eyes (conjunctivitis) but can also include muscle pain and headaches. Symptoms usually last for several days to a week and are often mild, so people usually do not have to be hospitalized. Death from Zika infection is very rare.

### **When do symptoms start?**

The incubation period (the time from exposure to symptoms) for Zika virus disease is not known, but is likely to be a few days to a week [[source](#)].

### **How does your doctor or other healthcare provider determine if you have contracted Zika?**

Your healthcare provider will consider if your symptoms are what would be expected for Zika as well as whether you've traveled from an area with active spread of Zika disease. If these are likely, then your doctor will contact DOH to request and coordinate testing of your blood. Your blood may need to be drawn at a certified clinical laboratory if not at the healthcare facility.

If it is within 7 days from the start of your symptoms (onset), they will test for the virus. If it is greater than 7 days from the start of your symptoms, they will test for antibodies.

If you have traveled to a place where Zika has been reported within the past three weeks and you become ill, please inform your healthcare provider where you have traveled.

### **If you get Zika fever once, can you get it again?**

It appears not. Once a person has been infected, he or she is likely to be protected from future infections [[source](#)].

### **What is the treatment for Zika?**

There is no medicine to treat Zika. It is treated by addressing the symptoms:

- a. Get plenty of rest.
- b. Drink fluids to prevent hydration.
- c. Take medicine such as acetaminophen (e.g., Tylenol®) or paracetamol to reduce fever and pain. *Aspirin and other non-steroidal anti-inflammatory drugs (for example, ibuprofen such as Advil® or Motrin®) should not be taken until dengue can be ruled out, to reduce the risk of bleeding.*

- d. If you are taking medicine for another medical condition, talk to your healthcare provider before taking any other medication.
- e. Avoid being bitten by mosquitoes during the first week of illness, to prevent the spread of Zika to mosquitoes which may then infect other people.

### **Is there a vaccine to prevent Zika?**

At this time there is no vaccine to prevent Zika.

### **Do pregnant women need to take extra safety measures?**

Yes, pregnant women need to take extra precautions. Because of the connection between Zika and microcephaly (a birth defect where a baby's head is smaller than expected compared with babies of the same sex and age), there are special concerns about Zika and pregnant women.

Pregnant women are at risk for Zika infection mainly through bites from an infected mosquito, but there is also risk from sexual contact with an infected male partner. Zika can also be spread from a pregnant woman to her unborn baby during pregnancy or at delivery.

*Currently, CDC is advising pregnant women not to travel to areas with Zika infection.*

*CDC is also advising pregnant women not to have sex with their male partner if he has recently traveled to areas with Zika infection. If a pregnant woman does have sex with her male partner who recently traveled to an area with Zika infection, CDC strongly advises that they use condoms correctly when they engage in sex.*

There is still a lot that we still don't know about the risks of Zika infection in pregnant women. We do not know how likely it is the virus will affect a pregnancy. We do not know how likely it is the baby of an infected pregnant woman will have birth defects. As always, we strongly encourage them to keep their unborn babies safe. Currently CDC recommends that if you are pregnant, you should delay travel to areas where there are Zika infections. If you need to travel to those areas, speak to your healthcare provider first. (For the latest recommendations, go to [CDC Zika Travel Information](#))

### **Can Zika infection cause birth defects if I get pregnant later?**

Based on current information, women who are not pregnant but are infected with Zika virus will not face risk of birth defects if they get pregnant in the future, after the virus has cleared her blood.

Based on current information, if a woman has already been infected with Zika once, she will not be infected with it again.

### **What is the advice for men so they do not infect their partners?**

Men who are infected with Zika can spread the virus to their sex partners, so it is important to take precautions. The advice is different, depending on whether a man has a confirmed Zika virus infection or has been exposed to the Zika virus and has symptoms, and whether his partner is pregnant.

- Men with a confirmed Zika virus infection and men who have been exposed to Zika and have symptoms of Zika infection should not have sex with their partner if she is pregnant, *for the remainder of the pregnancy*. However, if they do have sex (vaginal intercourse, anal intercourse, or oral intercourse), it is very important that they use correctly use condoms until after the baby is delivered [[source](#)]. Go to [this link](#) for information on the correct use of condoms.
- Men who live in or have traveled to an area where Zika infections are occurring but don't have symptoms of Zika infection *should not have sex* with their partner if she is pregnant, for the remainder of the pregnancy. If their partner is not pregnant, then they *should not have sex for at least 8 weeks* after the exposure to Zika ended. However, if they do have sex (vaginal intercourse, anal intercourse, or oral intercourse), it is very important that they use correctly use condoms until after the baby is delivered [[source](#)]. Go to [this link](#) for information on the correct use of condoms.

### **How can you keep from getting Zika?**

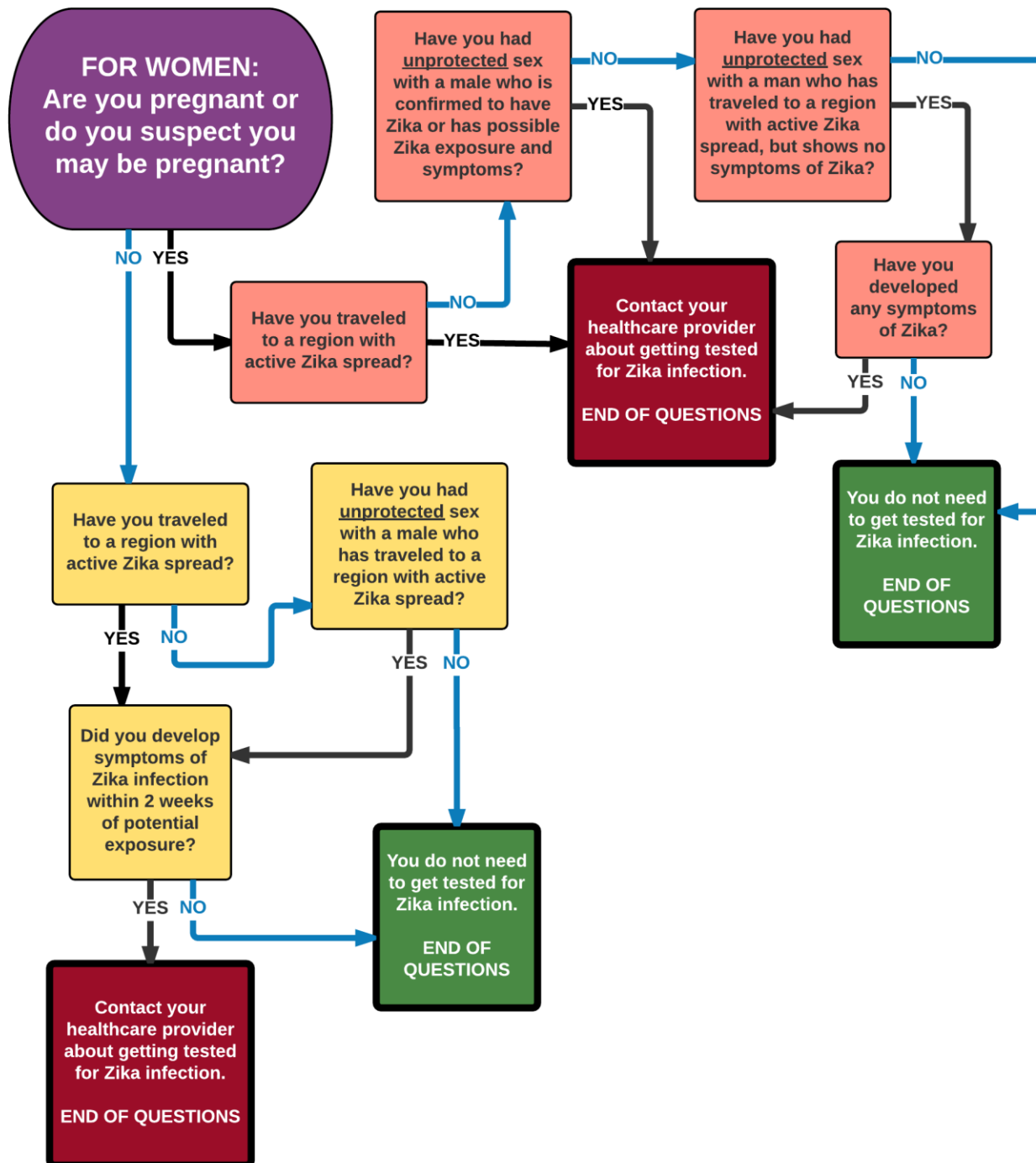
- When traveling to areas that have Zika and other mosquito-borne viruses (such as dengue or chikungunya), try to avoid exposure to mosquitoes. The *Aedes* mosquitoes that spread Zika virus are usually most active in the early morning hours after daybreak, in the late afternoon before dark, and any time during the day when indoors or in shady areas.
- Make sure there are no holes in the screens on windows and doorways where you are staying.
- Mosquito netting over beds may be helpful if you take naps during the early morning and evening hours or during the day when these mosquitoes are active.
- Use mosquito repellents with 20-30% DEET and wear clothing that covers exposed skin, such as long-sleeved shirts and long pants, to reduce exposure to mosquito bites. Also wear shoes and socks when outdoors.
- Mosquitoes are drawn to dark colors; if possible, wear white or light-colored clothing when you are likely to be exposed to biting mosquitoes.

### **Should I be tested for Zika?**

The following people should be tested for Zika:

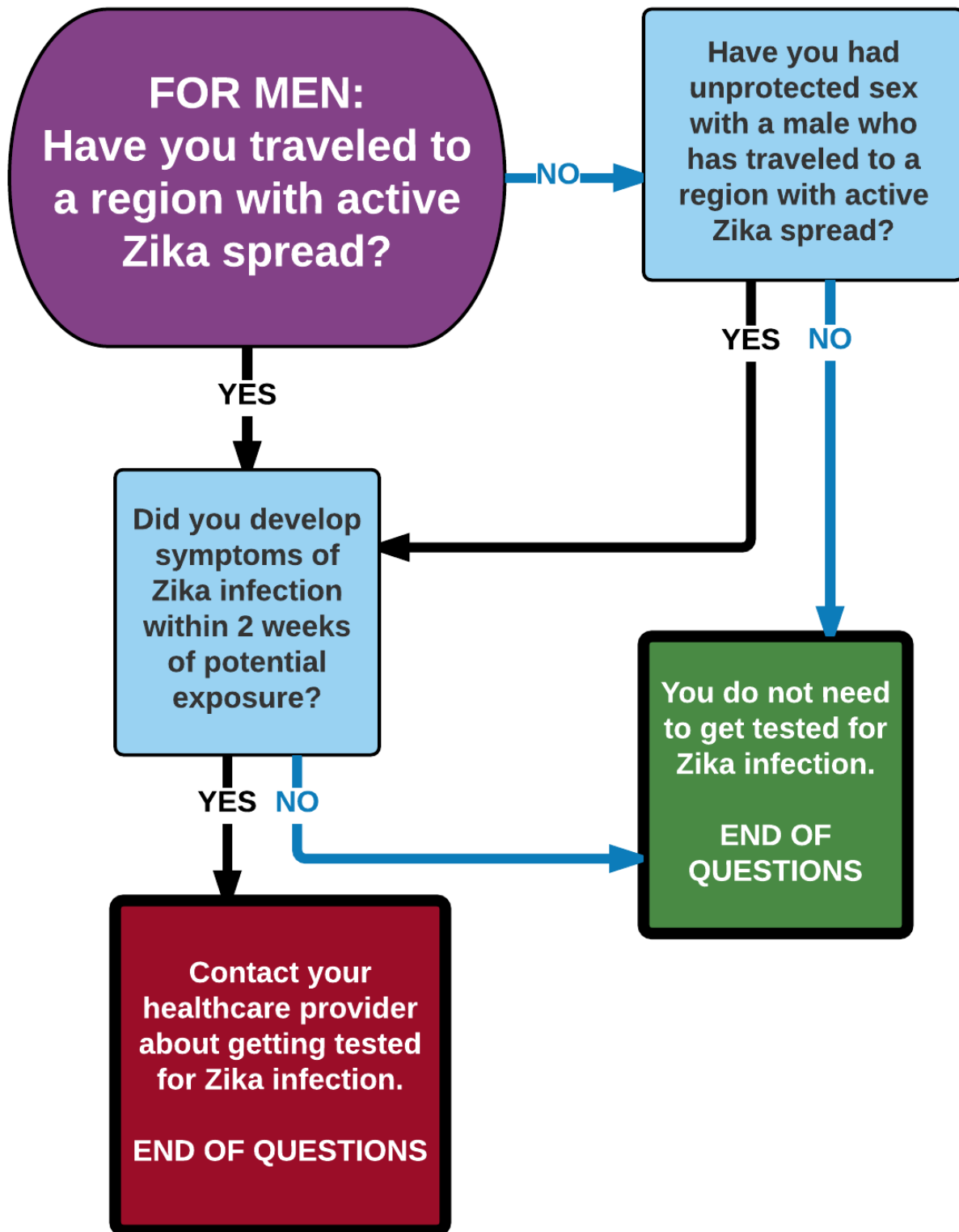
- Pregnant women who have traveled to an area with active Zika spread, whether they have symptoms or not.
- Pregnant women who have had unprotected sex with a man who has confirmed Zika infection or with a man who was exposed to Zika and has symptoms of Zika.
- Pregnant women who have developed at least one symptom of Zika virus infection and have had unprotected sex with a man who has no symptoms of Zika but has traveled to a region with active Zika spread.
- Men and non-pregnant women who have visited a region with active Zika spread and have developed symptoms of Zika virus infection within two weeks.
- Men and non-pregnant women who have had unprotected sex with a male who traveled to a region with active Zika spread and have developed symptoms of Zika virus infection within two weeks

## FOR WOMEN: SHOULD I GET TESTED FOR ZIKA?



## FOR MEN: SHOULD I GET TESTED FOR ZIKA?

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### **Do people who are infected with Zika need to be quarantined?**

No. Zika cases do NOT require quarantine, because it is typically spread from mosquito to person, not casual contact with other people. Quarantines are extreme measures used for serious or fatal diseases spread by direct human-to-human contact.

However, people infected with Zika must be careful to avoid mosquitoes. The most effective way to prevent future cases is to get rid of mosquitoes which might bite infected persons and then spread the virus to uninfected persons.

### **Zika in Hawaii**

#### **Where is Zika typically found? Is it found in Hawaii?**

Prior to 2015, Zika outbreaks have been reported in areas of Africa, Southeast Asia, and the Pacific Islands. More recently, they have been reported in Brazil and elsewhere in Latin America. Outbreaks have also been reported in the Pacific Islands. For up-to-date details, go to [this link](#).

To date, however, there have been no locally transmitted cases of Zika in Hawaii (meaning cases caught by a mosquito in Hawaii). Occasionally, visitors to Hawaii or Hawaii residents returning to the state have been infected with Zika from mosquitoes elsewhere. DOH investigates each reported case as soon as we hear about it to prevent Zika from spreading beyond these imported cases.

#### **What mosquitoes carry and spread Zika?**

The Zika virus that causes Zika disease is spread to people mostly by the *Aedes* mosquitoes, including *Aedes albopictus* and *Aedes aegypti*. These mosquitoes also carry and spread the viruses that cause dengue fever and chikungunya. These mosquitoes are found in tropical and subtropical regions throughout the world, including Hawaii. *Aedes albopictus* is found throughout the state, but at this time *Aedes aegypti* is known to be only on the Big Island.

The presence of Zika-transmitting mosquitoes in Hawaii is why it's so important to make sure we keep mosquitoes from breeding around where we live and work and get rid of any standing water (e.g., in flower pots or buckets).

There have been no "locally transmitted" cases of Zika where a person was infected by a mosquito in Hawaii.

#### **Is it safe to travel to Hawaii, even though there have been imported Zika cases?**

Absolutely, yes. Hawaii remains a safe destination for visitors and residents. Hawaii has thus far had no cases of *locally transmitted* Zika — that is, no cases among persons who have not traveled outside Hawaii. The handful of cases we've found were infected during their travel outside the state. However, we do have the *Aedes* mosquitoes which can carry and spread Zika, so it's important to make it a habit to always protect yourself and your family from mosquito bites.

People should, in general, reduce their risk of mosquito-borne illnesses like Zika and dengue when they travel, especially to areas with active spread of Zika disease, by protecting themselves against mosquitoes and mosquito bites through using mosquito repellent containing DEET and covering up with appropriate clothing no matter where they go (see “[How can you keep from getting it?](#)” on page 4), but especially when going into areas where mosquito activity is likely.

### **Could Zika spread to Hawaii?**

Zika is not normally present in the State of Hawaii, and it’s important to keep it that way. The *Aedes* mosquitoes which can spread Zika (as well as dengue and chikungunya) are present statewide; this is why, when a possible Zika case (travel-related or otherwise) is reported to us, DOH promptly does an in-depth investigation to make sure disease doesn’t spread. No matter where you are, though, it is a good idea to avoid mosquitoes and protect yourself from mosquito bites (see “[How can you keep from getting Zika?](#)” on page 4).

### **Is it safe for Hawaii residents to travel to countries affected by Zika?**

*Women who are pregnant should not travel to areas with Zika.* A map of countries with active Zika virus transmission can be found at <http://www.cdc.gov/zika/geo/index.html>. There is growing evidence that Zika virus can be spread from a pregnant woman to her unborn baby and cause a serious birth defect of the brain called [microcephaly](#), which means the baby’s brain and head are much smaller than they should be. If you must travel to an area with Zika, talk to your healthcare provider first and strictly follow [steps to prevent mosquito bites](#) during your trip. [[source](#)]

Cases of spread from an infected man to a woman through having sex have been reported, and a man who has had Zika disease and recovered may still be able to spread Zika through having unprotected sex for some time afterward.

- Men who travel to areas with Zika and develop symptoms of possible Zika infection in the 3 weeks after their return should see their healthcare provider and take care to use condoms correctly when having sex for at least 6 months.
- Men who travel to areas with Zika but do not develop symptoms should avoid sex with their pregnant partner for the duration of her pregnancy, unless condoms are used correctly.
- Men who travel to areas with Zika but do not develop symptoms of possible Zika infection and do not have a pregnant partner should take care to use condoms correctly for at least 8 weeks after exposure.

### **What should I do after I return home from travel to a country with Zika?**

Pay attention to your health and see your healthcare provider if you develop a fever, rash, joint pain, or red eyes within 3 weeks after traveling to a place where Zika has been reported. This is especially recommended for pregnant women and their male sex partners. Be sure to tell your healthcare provider where you traveled. [[source](#)]



**Do I have the symptoms of Zika?**

If you think you may have symptoms related to Zika (which can include rash, joint pain, and red eyes; also possibly muscle pain and headaches), you should contact your healthcare provider and avoid exposure to mosquitoes (see “[What are the symptoms of Zika?](#)” on page 2).

*If you are ill and are worried you might have Zika or another mosquito-borne virus such as dengue, it is important that you be evaluated by a healthcare provider.* Many of the initial symptoms of Zika are the same or very much like those of other conditions and require specific treatment (such as leptospirosis or dengue).

**Can I get tested for Zika?**

If you are concerned you might have Zika, you should contact your healthcare provider and avoid exposure to mosquitoes. If you have symptoms of Zika or other mosquito-borne illness and have history of travel to an area with active spread of Zika disease, your healthcare provider will contact DOH to order blood tests to confirm the diagnosis. Some Zika testing can be done at the DOH State Laboratories on Oahu, while more complex testing would be done at the CDC.

If you have limited financial means and do not have a primary care provider, you may seek medical help at a neighborhood health center if you are not in need of immediate urgent care. Individuals needing immediate urgent care should call 911 or go to the emergency room.

**What are the authorities looking for when they survey my property for mosquitoes? Could I get cited for something not related to the outbreak?**

When we get a report of a person with possible Zika or other mosquito-borne virus infection (such as dengue fever), DOH local vector control staff may survey and/or treat areas around the case’s home or work to look for any mosquito problems in that area. Because a mosquito may travel up to 200 yards or more, this could cover several properties. When they survey those areas, they are looking for places with heavy mosquito activity. They especially keep an eye out for possible mosquito breeding grounds, such as puddles, spare tires, uncovered water catchment systems, etc., and provide information on what you can do to help.

The purpose of these surveys is solely to prevent the spread of Zika and other mosquito-borne illnesses. These DOH vector control teams are not issuing citations and are not investigating other issues, such as building permits, plants grown on the property (unless they find standing water in them), or immigration status.

**What substance is used in the spraying of mosquitoes?**

The spray that is used is Aqua Reslin, which targets live adult mosquitoes. Although we recommend people and pets stay away from treated areas for several hours as a safeguard, the U.S. Environmental Protection Agency (EPA) has determined that the spray poses no health risk to humans or their pets.

### **Is the spray dangerous to my pets?**

One of the active ingredients in Aqua Reslin can be toxic to fish, such as ornamental fish in ponds. The substance has been used as a flea treatment in dogs and cats, but as a precaution it is advisable to keep them away from sprayed areas for several hours.

### **What is being done to stop imported Zika from spreading?**

DOH actively investigates reported cases of Zika and other mosquito-borne illnesses such as dengue and chikungunya, as well as works to identify any other cases and evaluate for on-going spread of disease. Department staff are also assessing areas of concern for mosquito activity and may, as a safeguard, spray areas specifically related to our ongoing investigation.

DOH and many other partners are reaching out to residents and visitors to *Fight the Bite!* by helping to get rid of mosquitoes and keep from getting bitten (see “[How can you keep from getting it?](#)” on page 4, and “[What steps should be taken to reduce mosquito nuisance at home?](#)” on page 11).

### **Can the Department of Health release the locations of confirmed Zika or dengue cases? I understand that the names of people may need to be kept private, but why can't the locations be disclosed?**

We appreciate the desire to have exact information regarding case locations, but many or most of the locations can be used to identify a person who is likely a patient, and patient confidentiality is something we must protect. Also, people regularly travel around their island (whether for work, school, shopping, etc.), and we have the *Aedes* mosquitoes that can carry and transmit mosquito-borne disease throughout the state. That's why it's important to always keep mosquitoes from breeding around where we live and work and keep from getting bitten by them.

### **Who do I contact with other questions about Zika and other mosquito-borne illnesses?**

*If you have general questions about Zika or other mosquito-borne diseases (such as dengue fever or chikungunya), or want recommendations about avoiding mosquitoes, call Aloha United Way's 2-1-1 hotline.*

*If you are ill and are worried you might have Zika, it is important you see a healthcare provider. If you do not have a provider, you can go to a community health center for care. Many of the early symptoms of Zika can be the same as other conditions (like dengue fever or leptospirosis) and require specific treatment.*

*If you think you might have had Zika or dengue recently, but didn't see a healthcare provider (or were not tested by your provider), contact: DOH Disease Outbreak Control Division at 808-586-4586.*

*If you have specific mosquito concerns (on your property or elsewhere in your community), contact:*

- City & County of Honolulu: 808-586-4708
- Hawaii County: (East) 808-974-6001 or (West) 808-322-4880

- Maui County: 808-873-3560
- Kauai County: 808-241-3306

## **MOSQUITOES**

### **Are all mosquitoes alike?**

No. Mosquitoes have been around for tens of millions of years. In that time, they've diversified into about 3,000 species worldwide. They have successfully adapted to climates from the Arctic to the Tropics. Some mosquitoes bite humans while others prefer other animals and some even just sip plant nectar; some transmit diseases, while others do not; some are active during the day, others at night; some prefer to breed in clean water, others in dirty ponds and swamps.

In Hawaii, the *Aedes aegypti* (Yellow Fever Mosquito) and *Aedes albopictus* (Asian Tiger Mosquito or Forest Day Mosquito) are known carriers of the Zika virus, dengue virus, and chikungunya virus. These mosquitoes are most active in the early morning after daybreak and the late afternoon before sunset. In shady areas they can be active during the day.

### **Do all mosquitoes bite?**

No. Only the females bite. Female mosquitoes require the protein of a blood meal for development of their eggs – they do not feed on blood for their own nourishment. Since blood is only required to build eggs, the males do not take blood, but rather feed on plant nectar.

Females may feed one to three times to obtain a full blood meal. The speed of digestion of the blood-meal may take 2-3 days in tropical areas, and then the female is ready to lay her eggs. After laying the eggs, the female mosquito may take on another blood-meal and repeat the process, thus feeding several times during her lifetime.

### **What are common mosquito breeding sites to watch for?**

Heavy mosquito nuisance usually indicates a nearby breeding source. *Aedes* mosquitoes typically lay their eggs on accessible surfaces above the water line/level. To find these places, make a systematic and thorough inspection around your home. Common breeding sites are in water found in old tires, clogged roof gutters, cans, bottles, unused swimming pools, unused fish ponds, pineapple lilies (bromeliads), hollow bamboo stumps, hollow tree stumps, uncapped hollow tile walls, uncapped fence pipes, overflow trays under house plants, and debris.

### **What is the life-cycle of an *Aedes* mosquito?**

Mosquitoes develop through four stages; egg, larva (wiggler), pupa (tumbler) and adult. It takes about 48 hours to finish egg embryonic development. The eggs hatch rapidly when they are flooded. The eggs can also survive during long periods of extreme dryness, sometimes for more than a year. Wigglers take about 7 days or longer to develop into an adult mosquito depending on the temperature and food supply. Mosquito larvae feed on a variety of organic materials and numerous other plant and animal micro-organisms in the water.

The lifespan of an adult stage *Aedes* mosquito can be as short as a few days to as long as several weeks.

### **What steps should be taken to reduce mosquito nuisance at home?**

- Remove or empty anything that catches or holds standing water, such as old tires, flowerpots, toys, buckets, and plastic tarps on your premises.
- For plants that hold water, flush with a hose once a week.
- Use mosquito-eating fish, such as guppies, in unused swimming pools, constructed fish ponds with no outlet to the environment, or other large containers that cannot be removed or emptied of standing water. *To protect Hawaii's rare native species and aquatic habitats, do not release guppies or other alien species into the natural environment.*
- Install or repair window screens and doors to keep out mosquitoes. Screens are your best protection against mosquito nuisance inside your home.
- Clean your gutters. Remove leaves and debris so water will drain freely.

*Aedes albopictus* adults usually rest out of doors, in places such as in bushes, but they can be found indoors in houses and other dwellings. *Aedes aegypti* are most commonly found indoors, and only occasionally outdoors in garden vegetation. These mosquitoes travel less than 200 yards.

### **If I have been infected with the Zika virus, how long am I infectious to mosquitoes?**

During the first week of infection, Zika virus can be found in the blood and passed from an infected person to a mosquito through mosquito bites. An infected mosquito can then spread the virus to other people. For this reason, if you have Zika, it is important to prevent mosquito bites for the first week of illness [[source](#)].

### **Can mosquitoes pass Zika to other mosquitoes, or pets and domestic animals?**

At this time, animals do not appear to be involved in the spread of Zika virus. At this time there have been no reports of other animals becoming sick with Zika or of being able to spread Zika to people or other animals. [[source](#)]

### **What steps can be taken for immediate temporary control of mosquitoes that spread illness?**

- Eliminate adult mosquitoes with aerosol insecticide labeled for flying insects.
- Use insecticides specifically labeled for controlling mosquito larvae in breeding sites that cannot be emptied or removed. Consult a garden shop or a chemical company for available insecticides.
- Carefully follow the insecticide label's instructions for use.

*CAUTION: Certain pesticides and their solvents may cause respiratory irritation. Persons with respiratory diseases should consult their physicians before using any pesticide. It is a violation of federal law if pesticides are not applied exactly as the label directs. Insecticides can be harmful to people, pets, wildlife, and the environment when used improperly. For more information on proper pesticide use, go to <http://hdoa.hawaii.gov/pi/pest/faq-for-pesticides>.*

### **How can I protect my children from mosquito bites?**

Children (and adults) should wear clothing with long pants and long sleeves while outdoors, as well as shoes and socks to cover the feet. DEET or other repellents such as permethrin (not

registered for use on skin) can also be applied to clothing, as mosquitoes may bite through thin fabric. Mosquito netting can be used over infant carriers. Also, try to reduce the number of mosquitoes in the area by getting rid of containers with standing water that provide breeding places for mosquitoes.

## **USING REPELLENTS SAFELY**

**CAUTION:** *Always read the entire label before you use insect repellent and apply exactly as the label directs.*

### **Why should I use insect repellent?**

Insect repellents can help reduce exposure to mosquito bites that may carry viruses, such as dengue fever or West Nile virus, that can cause serious illness and even death. Using insect repellent allows you to continue to play and work outdoors with a reduced risk of mosquito bites.

### **When should I use mosquito repellent?**

Because of the presence of illness-spreading *Aedes* mosquito species in Hawaii, apply repellent when you are going to be outdoors. Even if you don't notice mosquitoes, there is a good chance that they are around.

### **How often should repellent be reapplied?**

In general you should re-apply repellent if you are being bitten by mosquitoes. Always follow the directions on the product you are using. Sweating, swimming, or otherwise getting wet may mean that you need to re-apply repellent more frequently. Repellents containing a higher concentration (higher percentage) of active ingredient typically provide longer-lasting protection.

### **Which mosquito repellents work best?**

CDC recommends using products that have been shown to work in scientific trials and that contain active ingredients which have been registered with the US Environmental Protection Agency (EPA) at <http://www2.epa.gov/insect-repellents/using-insect-repellents-safely-and-effectively> for use as insect repellents on skin or clothing.

Of the active ingredients registered with the EPA, CDC believes that two have demonstrated a higher degree of efficacy in the peer-reviewed, scientific literature. Products containing these active ingredients typically provide longer-lasting protection than others:

- DEET (N,N-diethyl-m-toluamide)
- Picaridin (KBR 3023)

Oil of lemon eucalyptus [active ingredient: p-menthane 3,8-diol (PMD)], a plant-based repellent, is also registered with EPA. In two recent scientific publications, when oil of lemon eucalyptus was tested against mosquitoes found in the U.S., it provided protection similar to repellents with low concentrations of DEET.

**What are some general considerations to remember when using insect repellents?**

Always follow the recommendations appearing on the product label.

- Use enough repellent to cover exposed skin or clothing. Don't apply repellent to skin that is under clothing. Heavy application is not necessary to achieve protection.
- Do not apply repellent to cuts, wounds, or irritated skin.
- After returning indoors, wash treated skin with soap and water. (This may vary depending on the product. Check the label.)
- Do not spray aerosol or pump products in enclosed areas.
- Do not spray aerosol or pump products directly to your face. Spray your hands and then rub them carefully over the face, avoiding eyes and mouth.

**What are guidelines for using a repellent on children?**

Always follow the recommendations appearing on the product label when using repellent:

- Repellents containing DEET should not be used on infants less than 2 months old, and certain other repellents may not be appropriate for young children (e.g. oil of lemon eucalyptus should not be used with children less than age 3 years).
- When using repellent on a child, apply it to your own hands and then rub them on your child. Avoid children's eyes and mouth and use it sparingly around their ears. After returning indoors, wash treated skin with soap and water.
- Do not apply repellent to children's hands. (Children may tend to put their hands in their mouths.)
- Do not allow young children to apply insect repellent on themselves; have an adult do it for them.
- Keep repellents out of reach of children.
- Do not apply repellent under clothing. If repellent is applied to clothing, wash treated clothing before wearing again. (This recommendation may vary by product; check label for specific instructions.)
- Follow product instructions – using more won't give you extra protection but may increase risk.

**Can insect repellents be used by pregnant or nursing women?**

Other than the routine precautions noted earlier, EPA does not recommend any additional precautions for using registered repellents on pregnant or lactating women. Consult your health care provider if you have questions.

**What are some reactions to be aware of when using insect repellents?**

Use of repellent products may cause skin reactions in rare cases. Most products also note that eye irritation can occur if product gets in the eye. If you suspect a reaction to a product, you should discontinue use, wash the treated skin, and call a poison control center. If product gets in the eyes, flush with water and consult your health care provider or poison control center. If you go to a doctor, take the product with you.

There is a national number to reach a Poison Control Center near you: 1-800-222-1222.

**Where can I get more information about repellents?**

For more information about using repellents, please consult the Environmental Protection Agency (EPA) at: <http://www2.epa.gov/insect-repellents/using-insect-repellents-safely-and-effectively> or consult the National Pesticide Information Center (NPIC), which is cooperatively sponsored by Oregon State University and the U.S. EPA. NPIC can be reached at: [npic.orst.edu](http://npic.orst.edu) or 1-800-858-7378. For information on proper pesticide use, visit the Hawaii Department of Agriculture at: <http://hdoa.hawaii.gov/pi/pest/faq-for-pesticides>.